UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,248	07/01/2003	Donald J. Curry	D/A3009Q1	3357

7590   12/13/2007

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EXAMINER
LAROSE, COLIN M

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
12/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/612,248	CURRY ET AL.
	Examiner	Art Unit	
	Colin M. LaRose	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 November 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-12</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-12</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Arguments and Amendments

1.   Applicant's arguments and/or amendments dated 20 November 2007, have been entered and made of record.

Response to Amendments and Arguments

2.   Applicant's amendments to the claims are sufficient to overcome the previous rejections under 35 USC § 112, however, the amendments have also precipitated new grounds of rejection under 35 USC § 103, as explained below.

Specification

3.   In view of Applicant's amendments to the Specification, the previous objections thereto have been withdrawn.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,731,800 by Barthel et al. ("Barthel") in view of U.S. Patent 7,120,297 by Simard et al. ("Simard").

Regarding claims 1, 4, 7, and 10, Barthel discloses a computer-implemented method (figure 1) for separating an image signal into a set of image planes in accordance with a control signal, the method comprising the operations of:

receiving the control signal and producing a threshold selector signal, via a selector module, based on the control signal (i.e. the "Text Detection (Segmenting)" block receives binary/quantized image data as a "control signal" from the "Quantizing/Binarizing" block; the received signal is then used to produce a "selector" signal that indicates which image regions are selected for subsequent edge processing—see figure 3 where all connected regions in the binary quantized image data are determined, and then size filtration of the regions is performed in order to identify those regions lying within a certain size range defined by upper and lower size thresholds);

receiving the selector signal and producing a decision signal, via an edge processing module (the "selector" signal is received by a "Nonlinear Edge Detection" step, which performs edge detection on the selected regions; after further processing, a binary mask, or "decision signal," which indicates whether each region corresponds to text or background, is generated); and

receiving the image signal and the decision signal (i.e. the large block in figure 1 receives both), and outputting an initial foreground signal and an initial background signal, via a foreground/background separation module, a representation of the current pixel of the image signal being included in at least one of the initial foreground signal and the initial background signal in accordance with the decision signal (i.e. a pixel is indicated as being included in either

the background image or the foreground image based on the binary mask ("decision signal")

outputted from the "Text Detection (Segmenting)" block.

Since Barthel's disclosure is written in terms of a computer-implemented method, it does

not expressly disclose the system comprising means or article of manufacture comprising

program codes for performing the above steps, *per se*. However, at the time the invention was

made, those skilled in the art would have readily understood that Barthel's method was intended

to be performed via a computer, thereby necessitating the employment of physical components to

perform the method, e.g. processors or the like performing programmed methods/modules. That

is to say that the claimed system and article of manufacture having program codes for separating

an image signal are implicit in Barthel's disclosure.

Barthel does not appear to disclose "sub-sampling, by a programmable amount, the initial

foreground signal and the initial background signal while ignoring undefined pixels," as claimed.

Simard discloses an image coding system similar to that of Barthel, wherein an image is

segmented into a foreground layer, a background layer, and a mask layer for the purposes of

image coding. In particular, Simard teaches that the foreground and background signals are sub-

sampled prior to the coding thereof (see figure 7, elements 724 and 732). The advantage of

down-sampling, i.e., sub-sampling, the foreground and background signals is to reduce the size

of the signals, thereby increasing the compression thereof (see column 26/22-27 and column

27/66—28/4). In addition, Simard ignores "undefined pixels" insofar as the downsampling of the

foreground signal applies only to pixels contained in the foreground signal, and the

downsampling of the background signal applies only to pixels contained in the background

signal.

It would have been obvious to one of ordinary skill in the art at the time of the invention

to modify Barthel by Simard to sub-sample Barthel's initial foreground and background signals,

as claimed, since Simard teaches that such an operation has the advantage of reducing the size of

the signals and therefore increasing the compressibility of the signals (see column 26/22-27 and

column 27/66—28/4).

Regarding claims 2, 5, 8, and 11, Barthel further discloses:

receiving the foreground signal (figure 4) and the background signal (figure 5);

filling undefined pixels in the initial foreground and initial background signals with

values computed so as to substantially prevent artifacts and to facilitate good compression ratio,

using a cleanup module (figures 4 and 5: "Filling the remaining regions"; see also column 5,

lines 10-15 and 43-47); and

outputting a final foreground signal and a final background signal (see figure 1).

Regarding claims 3, 6 and 9, and 12, Barthel discloses the operation of filling comprises:

extending content of defined pixels in each of the initial foreground and initial

background signals to neighboring undefined pixels by filling neighboring undefined pixels with

diluted foreground and background values, respectively, using a dilate module (figures 4 and 5:

"spreading");

averaging non-zero content of the diluted foreground and background values over minimum coded unit blocks and outputting averaged block values, using a block average module (column 5, lines 10-15 and 43-47: the average value of all values not equal to zero is calculated and used for filling); and

filling any remaining undefined pixels with the averaged block values, using a fill module (figures 4 and 5: "Filling the remaining regions").

Conclusion

6.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If

attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian

Werner, can be reached on (571) 272-7401. The fax phone number for the organization where

this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000. Any inquiry

of a general nature or relating to the status of this application or proceeding can also be directed

to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Colin M. LaRose
Group Art Unit 2624
10 December 2007